*Session 3-Assignment 3 -YARN*

*Task 1:*

*Execute WordMedian , WordMean , WordStandardDeviation programs using*

*hadoop-mapreduce-examples-2.9.0.jar file present in your Acadgild ᴠᴍ*

# Solution :

### 1)Executing wordmedian program

*First create a input text file "text.txt" with some data in it and place the file in /user/hadoopdata/hdfs.*

*Now change the directory to mapreduce where the jar hadoop-mapreduce-examples-2.6.5.jar is stored using the below command:*

> **cd/home/acadgild/install/hadoop/hadoop-2.6.5/share/hadoop/mapreduce/**

*Executed wordmedian program using below command.*

> **hadoop jar hadoop-mapreduce-examples-2.6.5.jar wordmedian /user/hadoopdata/hdfs/text.txt  /user/hadoopdata/hdfs/wordmedian_output**

*Below is the screenshot of the wordmedian program output*

acadgild@localhost:~/install/hadoop/hadoop-2.6.5/share/hadoop/mapreduce

File   Edit   View   Search   Terminal   Help

```
[acadgild@localhost ~]$ cd /home/acadgild/install/hadoop/hadoop-2.6.5/share/hadoop/mapreduce/
[acadgild@localhost mapreduce]$ hadoop jar hadoop-mapreduce-examples-2.6.5.jar wordmedian /user/hadoopdata/hdfs/text.txt /use
r/hadoopdata/hdfs/Wordmedian_output
18/05/15 22:58:03 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java cl
asses where applicable
18/05/15 22:58:04 INFO client.RMProxy: Connecting to ResourceManager at localhost/127.0.0.1:8032
18/05/15 22:58:06 WARN mapreduce.JobResourceUploader: Hadoop command-line option parsing not performed. Implement the Tool in
terface and execute your application with ToolRunner to remedy this.
18/05/15 22:58:06 INFO input.FileInputFormat: Total input paths to process : 1
18/05/15 22:58:06 INFO mapreduce.JobSubmitter: number of splits:1
18/05/15 22:58:07 INFO mapreduce.JobSubmitter: Submitting tokens for job: job_1526401988903_0002
18/05/15 22:58:07 INFO impl.YarnClientImpl: Submitted application application_1526401988903_0002
18/05/15 22:58:07 INFO mapreduce.Job: The url to track the job: http://localhost:8088/proxy/application_1526401988903_0002/
18/05/15 22:58:07 INFO mapreduce.Job: Running job: job_1526401988903_0002
18/05/15 22:58:23 INFO mapreduce.Job: Job job_1526401988903_0002 running in uber mode : false
18/05/15 22:58:23 INFO mapreduce.Job:  map 0% reduce 0%
18/05/15 22:58:36 INFO mapreduce.Job:  map 100% reduce 0%
18/05/15 22:58:59 INFO mapreduce.Job:  map 100% reduce 100%
18/05/15 22:59:00 INFO mapreduce.Job: Job job_1526401988903_0002 completed successfully
18/05/15 22:59:00 INFO mapreduce.Job: Counters: 49
        File System Counters
                FILE: Number of bytes read=66
                FILE: Number of bytes written=215275
                FILE: Number of read operations=0
                FILE: Number of large read operations=0
                FILE: Number of write operations=0
                HDFS: Number of bytes read=160
                HDFS: Number of bytes written=24
                HDFS: Number of read operations=6
                HDFS: Number of large read operations=0
                HDFS: Number of write operations=2
        Job Counters
                Launched map tasks=1
                Launched reduce tasks=1

                Launched reduce tasks=1
                Data-local map tasks=1
                Total time spent by all maps in occupied slots (ms)=11501
                Total time spent by all reduces in occupied slots (ms)=19839
                Total time spent by all map tasks (ms)=11501
                Total time spent by all reduce tasks (ms)=19839
                Total vcore-milliseconds taken by all map tasks=11501
                Total vcore-milliseconds taken by all reduce tasks=19839
                Total megabyte-milliseconds taken by all map tasks=11777024
                Total megabyte-milliseconds taken by all reduce tasks=20315136
        Map-Reduce Framework
                Map input records=4
                Map output records=7
                Map output bytes=56
                Map output materialized bytes=66
                Input split bytes=116
                Combine input records=7
                Combine output records=6
                Reduce input groups=6
                Reduce shuffle bytes=66
                Reduce input records=6
                Reduce output records=6
                Spilled Records=12
                Shuffled Maps =1
                Failed Shuffles=0
                Merged Map outputs=1
                GC time elapsed (ms)=233
                CPU time spent (ms)=2470
                Physical memory (bytes) snapshot=295452672
                Virtual memory (bytes) snapshot=4118224896
                Total committed heap usage (bytes)=170004480
        Shuffle Errors
                BAD_ID=0
                CONNECTION=0
```

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        IO_ERROR=0
        WRONG_LENGTH=0
        WRONG_MAP=0                           I
        WRONG_REDUCE=0
    File Input Format Counters
        Bytes Read=44
    File Output Format Counters
        Bytes Written=24
The median is: 6
You have new mail in /var/spool/mail/acadgild
```

## 2)Executing wordmean program

Change the directory to mapreduce where the jar hadoop-mapreduce-examples-2.6.5.jar is stored using the below command:

**cd/home/acadgild/install/hadoop/hadoop-2.6.5/share/hadoop/mapreduce/**

Execute wordmean program using below command.

**hadoop jar hadoop-mapreduce-examples-2.6.5.jar wordmean /user/hadoopdata/hdfs/text.txt  /user/hadoopdata/hdfs/wordmean_output**

_Below is the screenshot of the wordmean program output_



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           acadgild@localhost:~/install/hadoop/hadoop-2.6.5/share/hadoop/mapreduce

File  Edit  View  Search  Terminal  Help
[acadgild@localhost ~]$ cd /home/acadgild/install/hadoop/hadoop-2.6.5/share/hadoop/mapreduce/
[acadgild@localhost mapreduce]$ hadoop jar hadoop-mapreduce-examples-2.6.5.jar wordmean /user/hadoopdata/hdfs/text.txt /user/
hadoopdata/hdfs/Wordmean.output
18/05/15 23:09:55 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java cl
asses where applicable
18/05/15 23:09:56 INFO client.RMProxy: Connecting to ResourceManager at localhost/127.0.0.1:8032
18/05/15 23:09:58 INFO input.FileInputFormat: Total input paths to process : 1
18/05/15 23:09:58 INFO mapreduce.JobSubmitter: number of splits:1
18/05/15 23:09:58 INFO mapreduce.JobSubmitter: Submitting tokens for job: job_1526401988903_0003
18/05/15 23:09:59 INFO impl.YarnClientImpl: Submitted application application_1526401988903_0003
18/05/15 23:09:59 INFO mapreduce.Job: The url to track the job: http://localhost:8088/proxy/application_1526401988903_0003/
18/05/15 23:09:59 INFO mapreduce.Job: Running job: job_1526401988903_0003
18/05/15 23:10:13 INFO mapreduce.Job: Job job_1526401988903_0003 running in uber mode : false
18/05/15 23:10:13 INFO mapreduce.Job:  map 0% reduce 0%
18/05/15 23:10:23 INFO mapreduce.Job:  map 100% reduce 0%
18/05/15 23:10:34 INFO mapreduce.Job:  map 100% reduce 100%
18/05/15 23:10:34 INFO mapreduce.Job: Job job_1526401988903_0003 completed successfully
18/05/15 23:10:34 INFO mapreduce.Job: Counters: 49
        File System Counters
                FILE: Number of bytes read=39
                FILE: Number of bytes written=215481
                FILE: Number of read operations=0
                FILE: Number of large read operations=0
                FILE: Number of write operations=0
                HDFS: Number of bytes read=160
                HDFS: Number of bytes written=18
                HDFS: Number of read operations=6
                HDFS: Number of large read operations=0
                HDFS: Number of write operations=2
        Job Counters
                Launched map tasks=1
                Launched reduce tasks=1
                Data-local map tasks=1
                Total time spent by all maps in occupied slots (ms)=8032
```

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                Total time spent by all reduces in occupied slots (ms)=7810
                Total time spent by all map tasks (ms)=8032
                Total time spent by all reduce tasks (ms)=7810
                Total vcore-milliseconds taken by all map tasks=8032
                Total vcore-milliseconds taken by all reduce tasks=7810
                Total megabyte-milliseconds taken by all map tasks=8224768
                Total megabyte-milliseconds taken by all reduce tasks=7997440
        Map-Reduce Framework
                Map input records=4
                Map output records=14
                Map output bytes=203
                Map output materialized bytes=39
                Input split bytes=116
                Combine input records=14
                Combine output records=2
                Reduce input groups=2
                Reduce shuffle bytes=39
                Reduce input records=2
                Reduce output records=2
                Spilled Records=4
                Shuffled Maps =1
                Failed Shuffles=0
                Merged Map outputs=1
                GC time elapsed (ms)=277
                CPU time spent (ms)=2160
                Physical memory (bytes) snapshot=297414656
                Virtual memory (bytes) snapshot=4118228992
                Total committed heap usage (bytes)=170004480
        Shuffle Errors
                BAD_ID=0
                CONNECTION=0
                IO_ERROR=0
                WRONG_LENGTH=0
                WRONG_MAP=0

                WRONG_REDUCE=0
        File Input Format Counters
                Bytes Read=44
        File Output Format Counters
                Bytes Written=18
The mean is: 5.285714285714286
You have new mail in /var/spool/mail/acadgild
[acadgild@localhost mapreduce]$
```

### 3)Executing WordStandardDeviation program

Change the directory to mapreduce where the jar hadoop-mapreduce-examples-2.6.5.jar is stored using the below command:

cd/home/acadgild/install/hadoop/hadoop-2.6.5/share/hadoop/mapreduce/

Execute wordstandardeviation mean program using below command.

hadoop jar hadoop-mapreduce-examples-2.6.5.jar wordstandarddeviation /user/hadoopdata/hdfs/text.txt /user/hadoopdata/hdfs/WSDevaition_output

Below is the screenshot of the wordstandrddeviation program output

```
[acadgild@localhost ~]$  cd /home/acadgild/install/hadoop/hadoop-2.6.5/share/had
oop/mapreduce/
[acadgild@localhost mapreduce]$ hadoop jar hadoop-mapreduce-examples-2.6.5.jar wordstandarddeviation /user/hadoopdata/hdfs/te
xt.txt /user/hadoopdata/hdfs/WSDeviation.output
18/05/15 23:19:58 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java cl
asses where applicable
18/05/15 23:20:00 INFO client.RMProxy: Connecting to ResourceManager at localhost/127.0.0.1:8032
18/05/15 23:20:02 INFO input.FileInputFormat: Total input paths to process : 1
18/05/15 23:20:02 INFO mapreduce.JobSubmitter: number of splits:1
18/05/15 23:20:02 INFO mapreduce.JobSubmitter: Submitting tokens for job: job_1526401988903_0004
18/05/15 23:20:03 INFO impl.YarnClientImpl: Submitted application application_1526401988903_0004
18/05/15 23:20:03 INFO mapreduce.Job: The url to track the job: http://localhost:8088/proxy/application_1526401988903_0004/
18/05/15 23:20:03 INFO mapreduce.Job: Running job: job_1526401988903_0004
18/05/15 23:20:16 INFO mapreduce.Job: Job job_1526401988903_0004 running in uber mode : false
18/05/15 23:20:16 INFO mapreduce.Job:  map 0% reduce 0%
18/05/15 23:20:26 INFO mapreduce.Job:  map 100% reduce 0%
18/05/15 23:20:36 INFO mapreduce.Job:  map 100% reduce 100%
18/05/15 23:20:37 INFO mapreduce.Job: Job job_1526401988903_0004 completed successfully
18/05/15 23:20:37 INFO mapreduce.Job: Counters: 49
        File System Counters
                FILE: Number of bytes read=56
                FILE: Number of bytes written=215681
                FILE: Number of read operations=0
                FILE: Number of large read operations=0
                FILE: Number of write operations=0
                HDFS: Number of bytes read=160
                HDFS: Number of bytes written=29
                HDFS: Number of read operations=6
                HDFS: Number of large read operations=0
                HDFS: Number of write operations=2
        Job Counters
                Launched map tasks=1
                Launched reduce tasks=1
                Data-local map tasks=1
                Total time spent by all maps in occupied slots (ms)=6940
                Total time spent by all reduces in occupied slots (ms)=7712
                Total time spent by all map_tasks (ms)=6940


                Total time spent by all reduces in occupied slots (ms)=7712
                Total time spent by all map tasks (ms)=6940
                Total time spent by all reduce tasks (ms)=7712
                Total vcore-milliseconds taken by all map tasks=6940
                Total vcore-milliseconds taken by all reduce tasks=7712
                Total megabyte-milliseconds taken by all map tasks=7106560
                Total megabyte-milliseconds taken by all reduce tasks=7897088
        Map-Reduce Framework
                Map input records=4
                Map output records=21
                Map output bytes=308
                Map output materialized bytes=56
                Input split bytes=116
                Combine input records=21
                Combine output records=3
                Reduce input groups=3
                Reduce shuffle bytes=56
                Reduce input records=3
                Reduce output records=3
                Spilled Records=6
                Shuffled Maps =1
                Failed Shuffles=0
                Merged Map outputs=1
                GC time elapsed (ms)=212
                CPU time spent (ms)=2370
                Physical memory (bytes) snapshot=296300544
                Virtual memory (bytes) snapshot=4123373568
                Total committed heap usage (bytes)=170004480
        Shuffle Errors
                BAD_ID=0
                CONNECTION=0
                IO_ERROR=0
                WRONG_LENGTH=0
                WRONG_MAP=0
                WRONG_REDUCE=0
        File Input Format Counters
                Bytes Read=44
```

```
            File Output Format Counters
                    Bytes Written=29
The standard deviation is: 1.9794866372215743
You have new mail in /var/spool/mail/acadgild
[acadgild@localhost mapreduce]$ █
```